

H0004743-US**What is claimed is:****1. A homogenizer for collimated light comprising:**

a total internal reflection light guide having a first refractive index, said light guide having an entrance, an upper surface, and a lower surface;

a mild diffuser covering said entrance;

an optical constraining layer having a second refractive index and disposed on one of said surfaces of said light guide; and

an optical absorbing layer having a third refractive index and disposed on said optical constraining layer,

said third refractive index being greater than said second refractive index and said second refractive index being slightly less than said first refractive index.

2. The homogenizer of claim 1 further comprising:

a second optical constraining layer having said second refractive index and disposed on a surface of said light guide opposite to said one surface; and

a second absorbing layer having said third refractive index and disposed on said second optical constraining layer.

3. The homogenizer of claim 2 wherein said optical constraining layers each comprises a pressure sensitive adhesive; and said optical absorbing layers each comprises an black polyimide

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4. The homogenizer of claim 2 wherein said optical constraining layers each comprises a thin film coating and said optical absorbing layers each comprises an absorbing overcoat.
5. The homogeizer of claim 1 wherein said light guide is acrylic with a refractive index of 1.4893, said optical constraining layer is an acrylic pressure sensitive adhesive having a refractive index of 1.4800, and said optical constraining layer is black polyimide with a refractive index between 1.64 and 1.67.
6. The homogenizer of claim 1 wherein said light guide has an exit surface and further comprising a wedge shaped light extraction guide adjacent said exit surface.
7. The homogenizer of claim 1 wherein said mild diffuser has a controlled scattering angle of less than about eight degrees.
8. The homogenizer of claim 7 wherein said mild diffuser has a controlled scattering angle of +/- five degree full-width half maximum scatter.
9. The homogenizer of claim 1 wherein said mild diffuser is positioned in front of and adjacent said light guide entrance.

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10. The homogenizer of claim 1 wherein said mild diffuser is embossed on said light guide entrance.

11. The homogenizer of claim 1 wherein said light guide includes a wedge shaped light extracting guide region.

12. An optical light guide for distributing light comprising:

a transparent slab light guide having a first refractive index and having an entrance surface, an exit surface, and upper and lower surfaces;

a mild diffuser positioned in front of and adjacent said entrance surface;

optical constraining layers having a second refractive index and disposed on said upper and lower surfaces;

optical absorbing layers having a third refractive index and disposed on said optical constraining layers; and

a wedge shaped light extraction guide positioned adjacent said exit surface,

said third refractive index being greater than said second refractive index and said second refractive index being slightly less than said first refractive index.

13. The optical light guide of claim 12 wherein said mild diffuser has a controlled scattering angle of less than about eight degrees.

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14. The optical light guide of claim 13 wherein said mild diffuser has a controlled scattering angle of less than +/- five degree full-width half maximum scatter.

15. The optical light guide of claim 12 wherein said first refractive index is 1.4893, said second refractive index is 1.4800, and said third refractive index is between 1.64 and 1.67.

16. An optical light guide for distributing light comprising:

a transparent slab light guide having a first refractive index, an entrance with a diffuser surface embossed thereon, a constant cross-section region, and a wedge shaped light extraction region;

said constant cross-section region including an upper surface and a lower surface;

optical constraining layers having a second refractive index disposed on said upper and lower surfaces; and

optical absorbing layers having a third refractive index and disposed on said optical constraining layers,

said third refractive index being greater than said second refractive index and said second refractive index being slightly less than said first refractive index.

17. The optical light guide of claim 16 wherein said mild diffuser has a controlled scattering angle of less than about eight degrees.

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18. The optical light guide of claim 17 wherein said mild diffuser has a controlled scattering angle of less than +/- five degree full-width half-maximum scatter.